

SODA BUTTE CREEK BRIDGE II
Yellowstone Roads and Bridges
Spanning Soda Butte Creek on
Northeast Entrance Road
Yellowstone National Park
Park County
Wyoming

HAER No. WY-50

HAER
WYO
15-YELNAP,
18-

WRITTEN HISTORICAL & DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
U.S. Department of the Interior
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HISTORIC AMERICAN ENGINEERING RECORD

SODA BUTTE CREEK BRIDGE II

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Location: Spanning Soda Butte Creek on Northeast Entrance Road, 6.4 miles west of the northeast entrance station, Yellowstone National Park, Park County, Wyoming

Date of Construction: 1936

Owner: Yellowstone National Park, National Park Service

Use: Vehicular bridge

Designer: Architectural plans by W.G. Carnes, Branch of Plans and Design, National Park Service; General plans and specifications by E.T. Larson, Bureau of Public Roads; L.U. Foreman, Project Engineer, Bureau of Public Roads

Builder: Strong & Grant, Springville, Utah

Significance: Soda Butte Creek Bridge II typifies the early design philosophy of the National Park Service, which was to use indigenous materials to harmonize man-made features with their natural surroundings. This philosophy is embodied in many of the park's Rustic Style buildings and structures.

Project Information: Documentation of Soda Butte Creek Bridge II is part of the Yellowstone Roads and Bridges Recording Project, conducted during the summer of 1989 by the Historic American Engineering Record, a division of the National Park Service, under the co-sponsorship of Yellowstone National Park, the NPS Roads and Bridges Program, and the NPS Rocky Mountain Regional Office, Denver. Historical research and written narrative by Mary Shivers Culpin, Historian, NPS Rocky Mountain Regional Office. Engineering description by Steven M. Varner, Virginia Polytechnic Institute. Edited and transmitted by Lola Bennett, HAER Historian, 1993.

HISTORY OF NORTHEAST ENTRANCE ROAD

(See HAER WY-12, Lamar River Bridge.)

DESIGN AND CONSTRUCTION OF SODA BUTTE CREEK BRIDGE II

Construction of Soda Butte Creek Bridge II was part of a 13-mile modernization project of the old Tower Junction to Cooke City Road. The former wagon road did not meet the demands of the increasing volume of tourists who were entering the park on the recently-completed road from Cooke City to Red Lodge, Montana, (Beartooth Highway). The major focus of the project was grading and the construction of three bridges, one of which was Soda Butte Creek Bridge, 6.4 miles west of the park boundary at Cooke City.

During the autumn of 1933, A.O. Stinson of the Bureau of Public Roads (BPR) completed the location survey in which test pits were excavated to determine the nature of foundation material, and samples of the sand and gravel were gathered from several nearby stream deposits.

Plans were drawn up during the spring of 1934, based upon a 24-foot roadway, curb-to-curb. Strong & Grant of Springville, Utah, was awarded the contract so late in the construction season that work did not begin until the following year. Toward the end of May 1936, the contractor established a temporary camp, and the six-man crew began work on June 1. The first task was to erect a screening and washing plant for the production of concrete aggregate from a large gravel bar near the confluence of Soda Butte Creek and Pebble Creek.

Due to the concurrent construction of three bridges along the project, the bridges were built in stages in order to utilize common equipment and labor on each structure. The staggered construction and lack of adequate manpower resulted in the approaches to the bridges not being finished as soon as the concrete was ready for backfilling. With only a few days needed for finishing the approaches, the project had to be shut down for the winter. Work did not begin again until June 8, 1936.

The crews arrived on June 8 to complete the approaches only to find that they had settled noticeably. Upon the obliteration of the camp site, the final inspection was completed on July 27, 1936, by C.F. Capes of the Bureau of Public Roads. The bridge cost a total of \$18,465.20. The entire project took a total of 172 days, or 86 percent of the contract's allowable 200 days. The labor for the work was secured through the office of the National Reemployment Service located at Mammoth Hot Springs. Most of the men came from Montana, Wyoming and Idaho. Available unskilled labor was ample, but finding skilled laborers (particularly bridge carpenters) was more difficult.¹

DESCRIPTION

Soda Butte Creek Bridge is one span measuring 43'. The span length is measured from center of support to center of support. The deck width is 27'-6" while the roadway from curb to curb is 23'-4" wide.² The single 43-foot span of steel I-beam, reinforced-concrete deck superstructure and reinforced-concrete "U"-type abutments is constructed on a 30-degree skew. The bridge, whose design load was 15 tons, has five I-beam girders with the outer ones encased in concrete on the outside. The concrete forms a slight arch. There is some transverse bracing in the form of steel staggered I-beams not quite as deep as the girders. The wearing surface is asphalt.³ The guard rail consists of log posts and rails on the outside. The foundation material under the bridge is coarse gravel and boulders with good supporting power.⁴

In 1986 the general condition of the bridge was listed as poor with moderate to severe spalling of weather-exposed surfaces.⁵

ENDNOTES

1. L.U. Foreman, "Final Construction Report (1935-1936) on Project NR 8-A1, Bridges, Tower Junction--Cooke City Highway, Yellowstone National Park," 26 March 1937.

2. "Bridge Safety Inspection Report, Soda Butte Creek Bridge, July 8, 1985.
U.S. Department of Transportation, Federal Highway Administration, Western Direct Federal Division.

3. Ibid.

4. Foreman, "Final Construction Report (1935-1936) on Project NR 8-A1, Bridges, Tower Junction-Cooke City Highway Yellowstone National Park".

5. "Parkwide Road Engineering Study, Yellowstone National Park," vol. I,
U.S. Department of Transportation, Federal Highway Administration, Western Division,
Vancouver, Washington, 1986.